

1/10

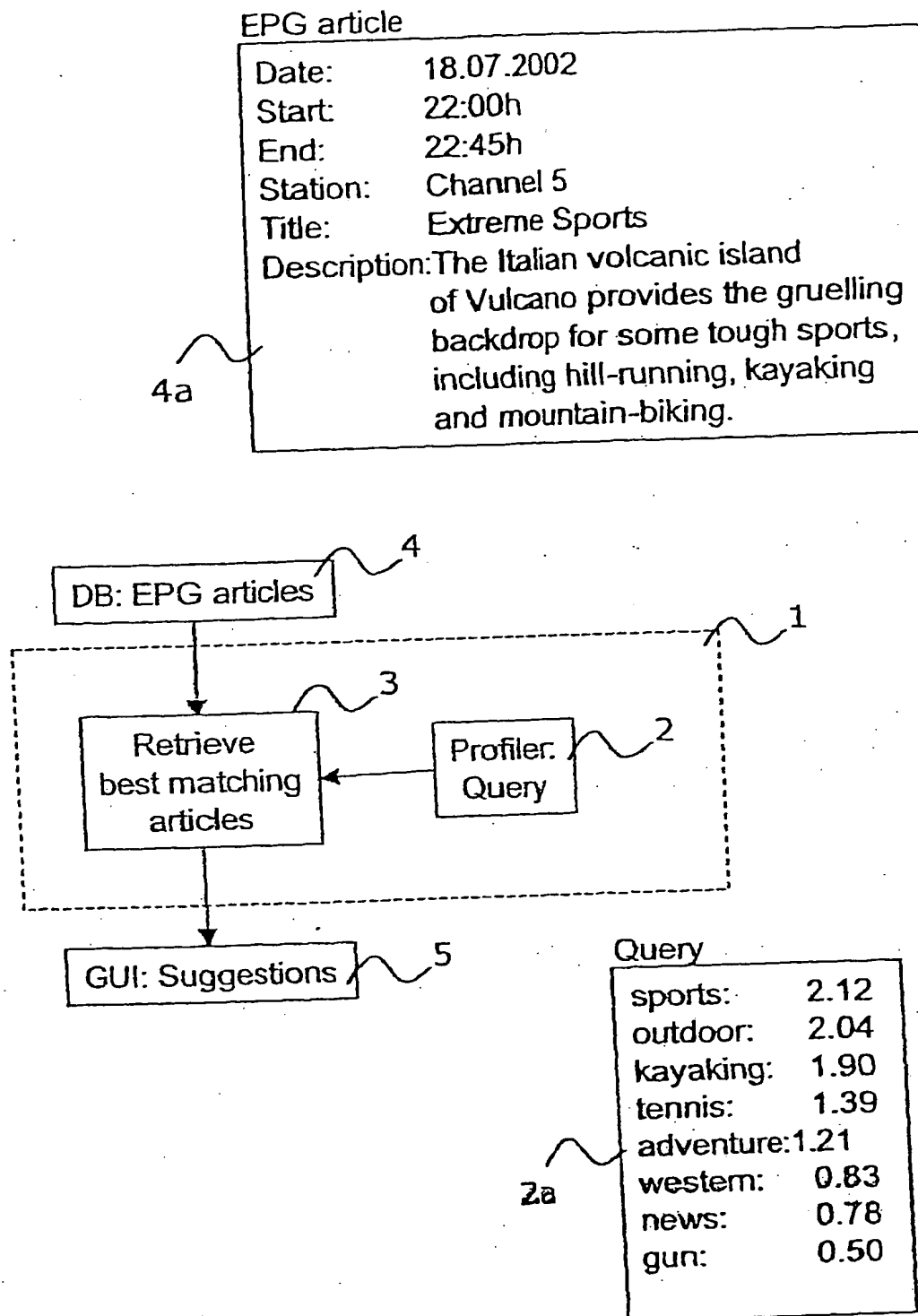


Fig. 1

2/10

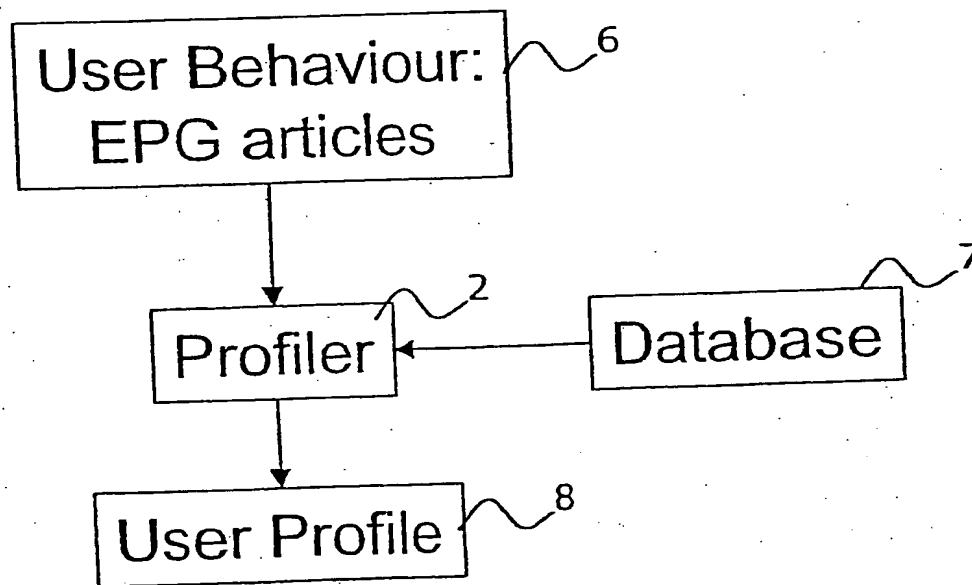
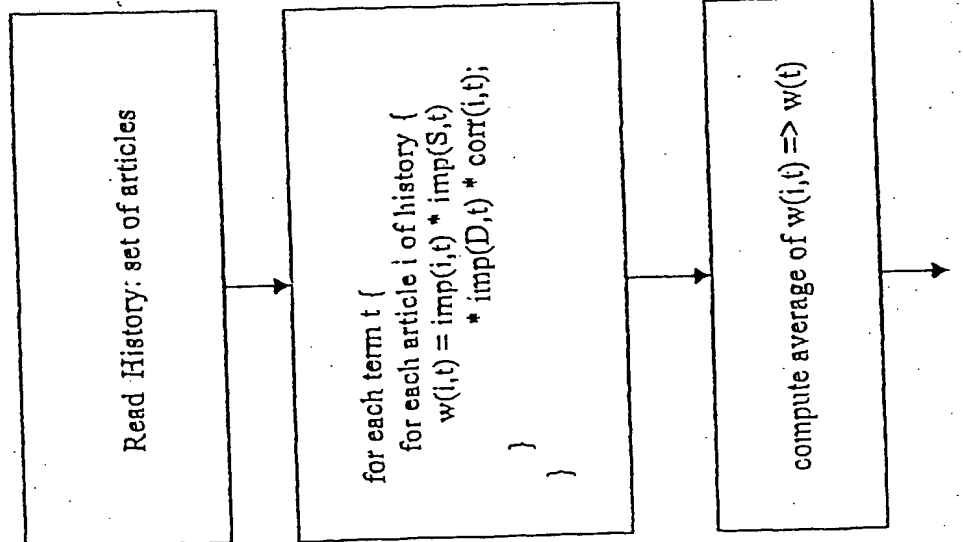


Fig. 2

3/10

Fig. 3a

Theoretic approach:



Concrete example:

Article 1: pop music rock madonna music...
 Article 2: beethoven symphony mozart classic...
 Article 3: punk rock music...
 Article 4: classic philharmonic music...

	Art. 1	Art. 2	Art. 3	Art. 4
music	$1.2 * 1 * 1 * 0.9$	$0^{*..}$	$1 * 1 * 1 * 0.8$	$1 * 1 * 1 * 0.8$
classic	$0^{*..}$	$1 * 1 * 1 * 0.4$	$0^{*..}$	$1 * 1 * 1 * 0.7$
rock	$1 * 1 * 1 * 0.7$	$0^{*..}$	$1 * 1 * 1 * 0.8$	$0^{*..}$
pop	$1 * 1 * 1 * 0.5$	$0^{*..}$	$0^{*..}$	$0^{*..}$
...				

	$w(t)$
music	$(1.08 + 0.0 + 0.8 + 0.8) / 4 = 0.67$
classic	$(0.0 + 0.4 + 0.0 + 0.7) / 4 = 0.275$
rock	$(0.7 + 0.0 + 0.8 + 0.0) / 4 = 0.375$
pop	$(0.5 + 0.0 + 0.0 + 0.0) / 4 = 0.125$
...	

Fig. 3b

Concrete example:

music 0.67
 rock: 0.375
 classic 0.275
 pop 0.125
 ...

4/10

Theoretic approach:

...



UserProfile = Set of all terms of the history
 with weights

For simplicity the following function is used :

$$w_i(t) = (1 + \frac{1}{2} \log(\frac{f_{i,t}}{f_i} + 1)) * 1 * (\frac{f_{i,t}}{f_{i,t} + \sqrt{f_i} / \text{avg}(\sqrt{f_i})})$$

Fig. 3c

Concrete example:

...		
Article i:	classic music..	=> 0.945
...		
Article j:	rock music..	=> 1.045
...		
Article k:	british music..	=> 0.67
...		

Theoretic approach:

```

for each Article in Database {
  compute modified OKAPI weight
  with User Profile.
}

```

For reasons of simplicity, the function

$$OKA_{\text{modified}}(q, i) = \sum_{(q \wedge i) \in I} w(i) * 1 * 1$$

Is used, where q is the profile and i the article of the data base.

Fig. 4a

Available profiles

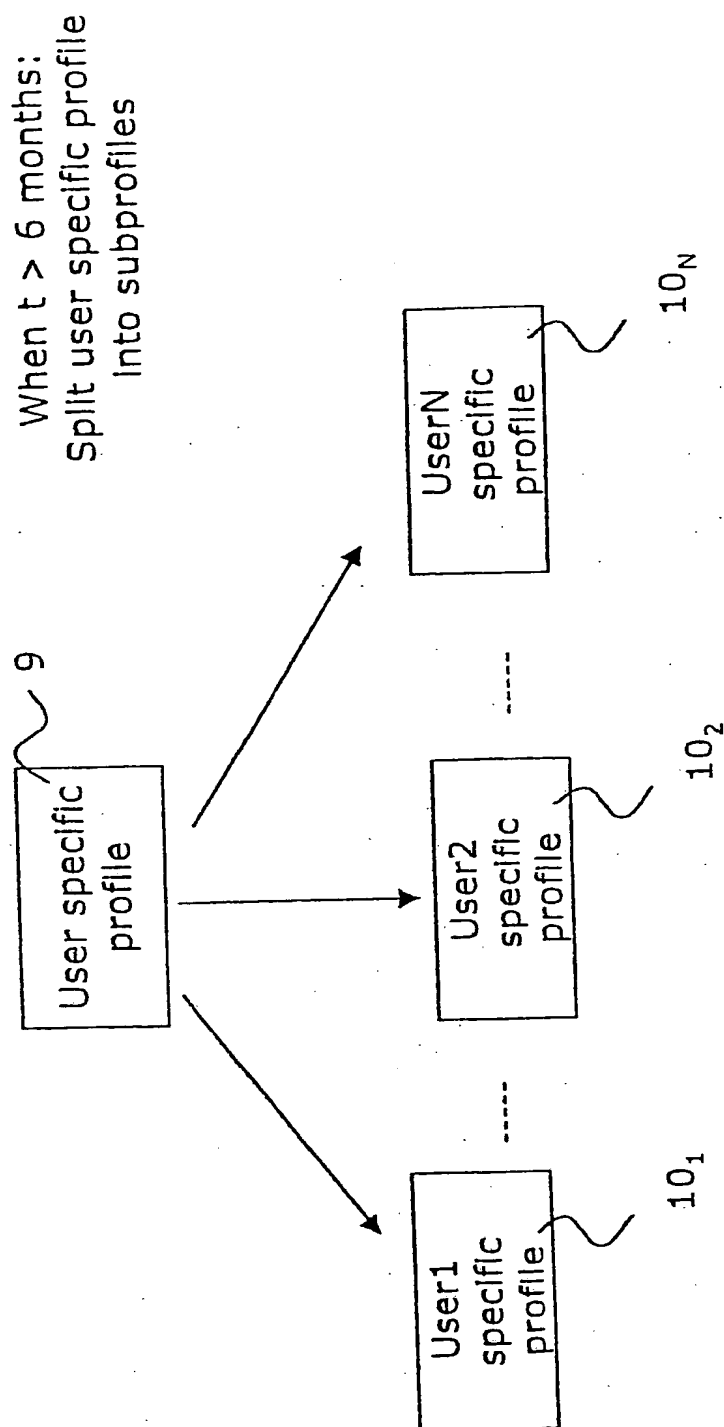
Associated weights

News profile	Sport Profile	Thriller profile	Classical Music	Generic /average user profile	User Specific	
0	0	0	0	1.0	0	Start, t = 0
0	0.03	0.01	0.06	0.9	0	After t = a few hours
0.03	0.09	0.01	0.07	0.7	0.1	After t = 1 day
0.05	0.1	0.05	0.2	0.1	0.5	After t = 1 week
0	0	0	0	0	1	After t = several months

Watching time t

7/10

Fig. 4b



8/10

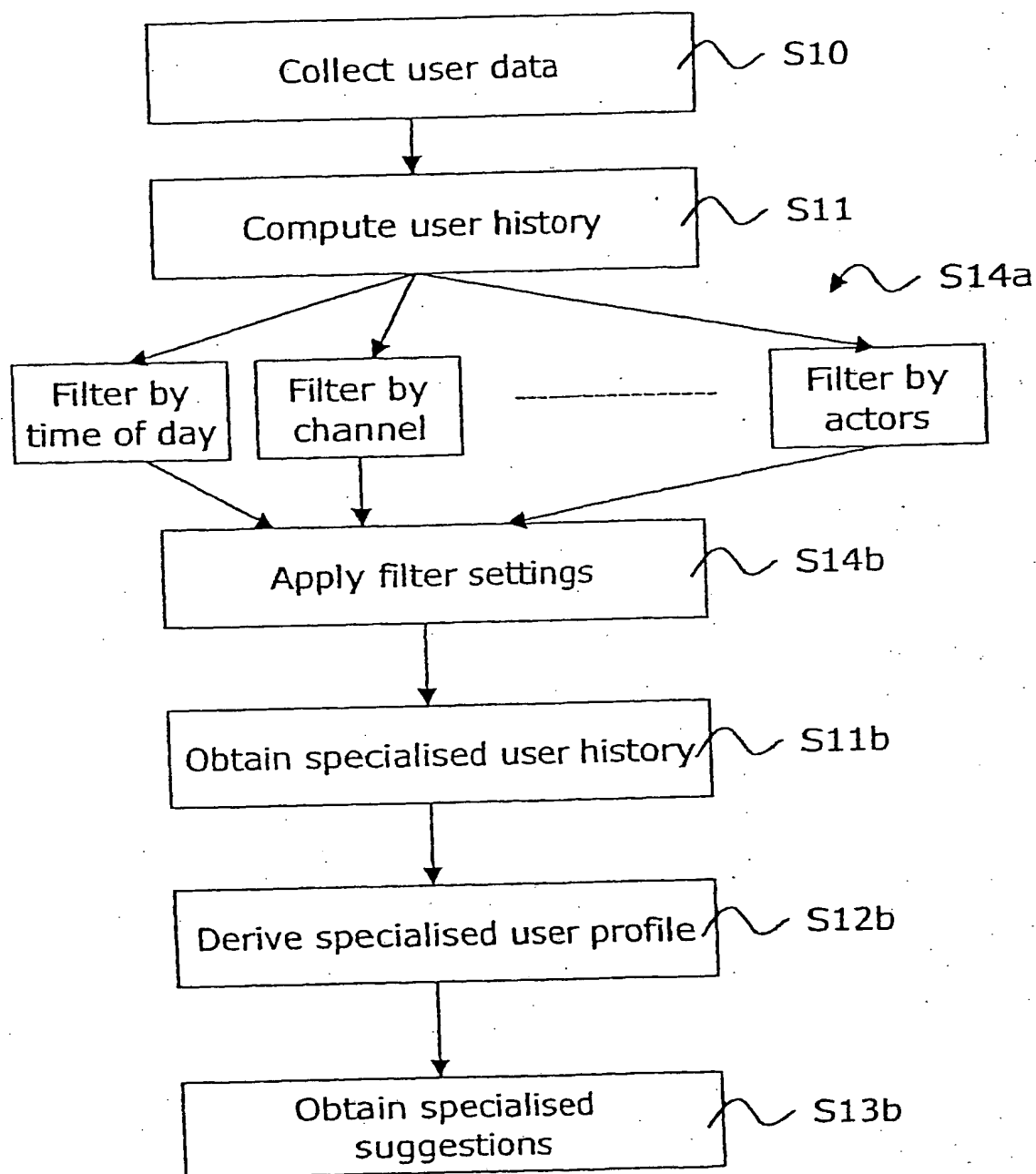


Fig. 5a

9/10

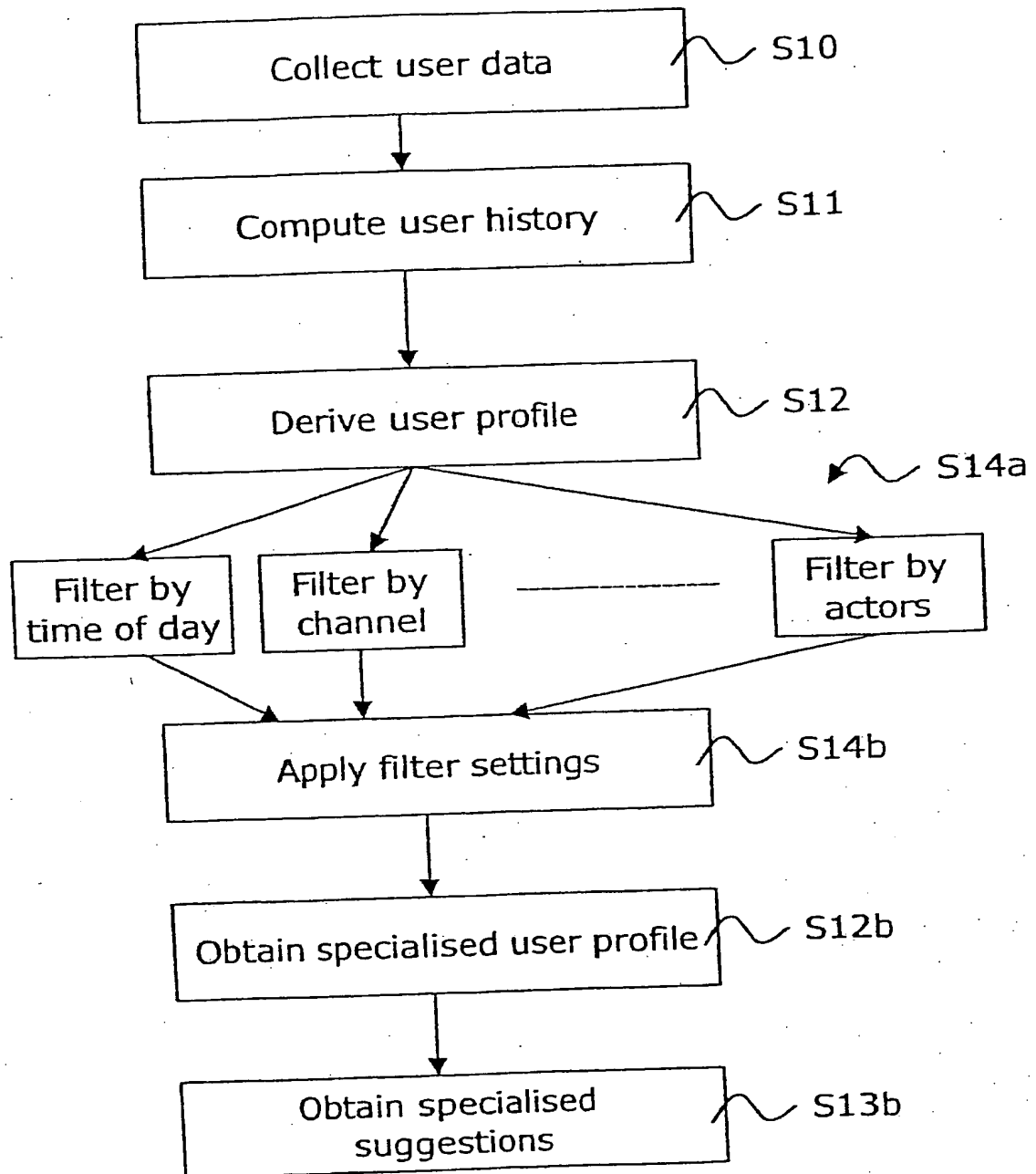


Fig. 5b

10/10

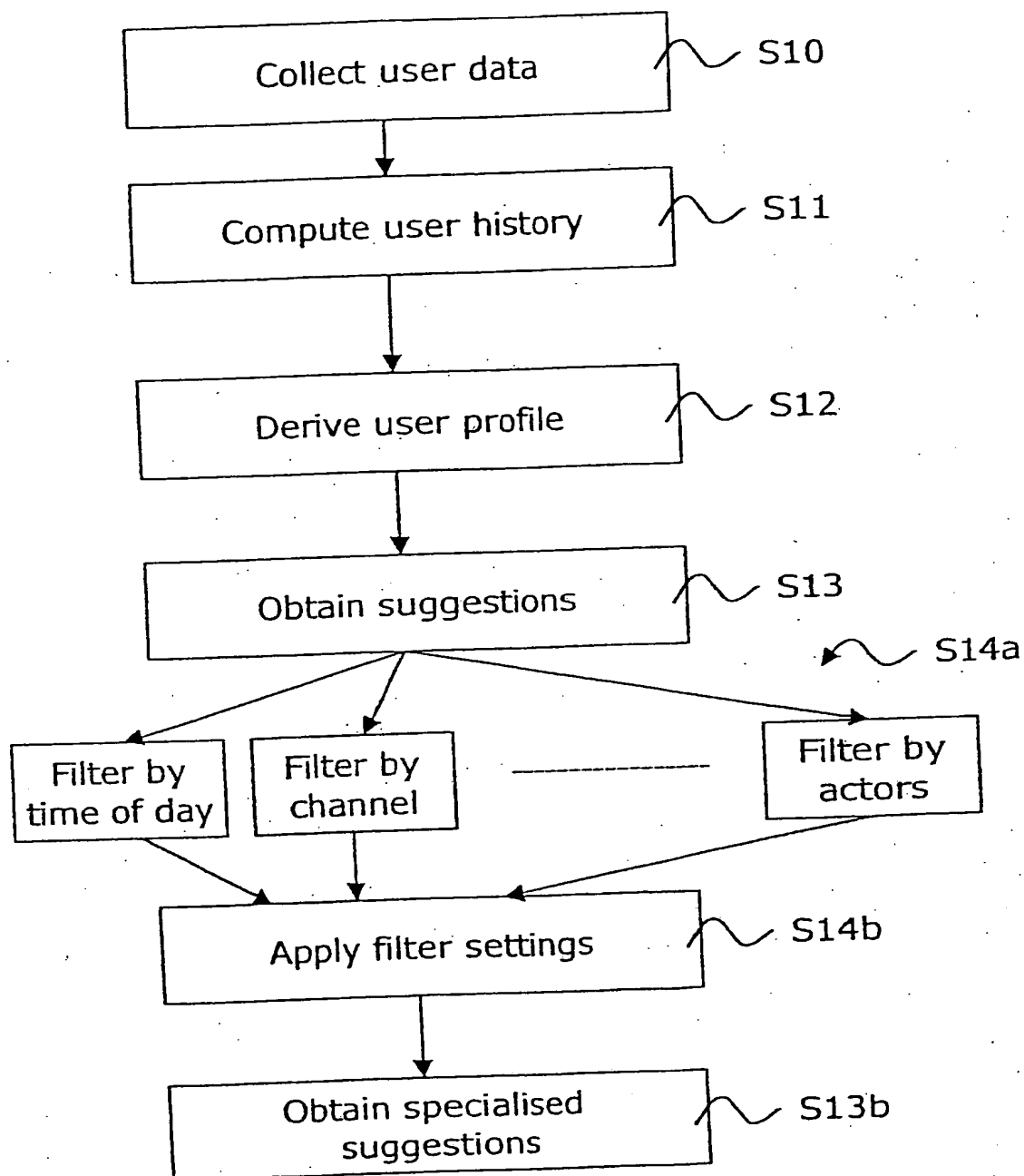


Fig. 5c